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TECHNISCHE INFORMATION

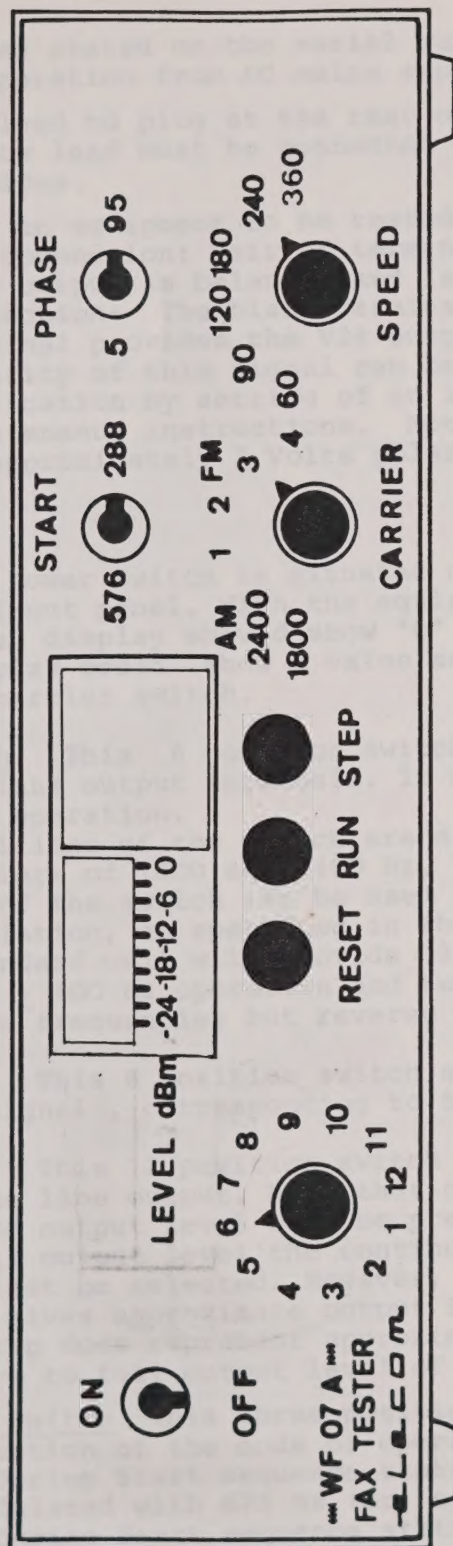
WF 07 A

WF 07 A

Funkstille Test Unit

Print Panel Layout

eLecom



WFO7A

Facsimile Test Unit

Front Panel Layout

elecom

LOG
display

20.4.80

14.3.80

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Installation

Unless otherwise stated on the serial number label, the unit is suitable for operation from AC mains supply 220/230 volts 50Hz.

Connect mains lead to plug at the rear of the test unit. Note the green/yellow lead must be connected to earth according to safety regulations.

Connect output to equipment to be tested as required:

AF Line connection: Pair of terminals marked LINE

This output is balanced and isolated from ground.

V24 connection: The black terminal is grounded. The blue terminal provides the V24 output signal. Note that polarity of this signal can be adapted to suit the application by setting of an internal switch. See Maintenance instructions. Note that the output level is approximately 5 Volts polar.

Operation

Power On The power switch is situated on the left hand side of the front panel. With the equipment switched on, the sequence display should show "0" and the line output LED display could show a value according to the setting of the carrier switch.

Carrier Switch This 6 position switch will set the modulation at the line output terminals. It does not at all affect the V24 operation.

Two positions of the switch are dedicated to AM operation at carriers of 1800 and 2400 Hz. The remaining four positions of the switch can be used for FM modulation or AM modulation, as specified in the model options.

The standard unit will provide 1900 Hz + 150 Hz operation 1900 Hz + 400 Hz operation and two further positions with the same frequencies but reverse modulation polarity.

Speed Switch This 6 position switch selects the speed of the phase signal, corresponding to 60/90/120/180/240/480 RPM

Level Switch This 12 position switch selects the output level from the line output. Note that on AM in the initial state no output level will be present, and that to meter the full output level the continuous carrier status "C" must first be selected. However, the position of the switch gives approximate output level information since each step does represent approximately 3dB attenuation, relative to full output level of 0 dB.

Start Signal Switch This three position toggle switch allows preselection of the mode of operation.

288: During Start sequence status, the carrier will be modulated with 675 Hz (or, optional, another frequency)

576: During Start sequence status, the carrier will be modulated with 300 Hz.

Center position: During start sequence status, no carrier will be present. This applies for carrier operation of recorders which start with phase signal

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Phase Signal Switch This three position toggle switch allows preselection of the phase signal to be used.

95%: 95% black and 5% white per revolution

5 %: 5% black and 95% white per revolution

Center position: 50% black, 50% white per revolution

After all these switches have been preselected to suit the application, the unit is started by the three push-buttons as follows:

RESET Pushbutton: Depressing this pushbutton, the unit will revert to the standby mode, with permanent white modulation at the outputs.

RUN Pushbutton: Momentarily depressing this pushbutton starts the test sequence, which will run automatically. Note: The speed of the test sequence can be set by internal switches. See maintenance instructions. Note: The test sequence may once run through all status positions, or may run continuously. This is selected by the setting of an internal switch. See maintenance instructions.

STEP Pushbutton: Depressing this pushbutton will step the test sequence with a rate of approx. 1 step per second. If the pushbutton is released, the last test status will be held indefinitely, until either reset, run or step pushbutton is depressed again.

The test sequence can be stepped through the following individual steps:

No.	Display	Meaning
(o)	O	White (no carrier at AM)
(1)	S	Start signal as selected, or white if none
(2)	P	Phase signal as selected
(3)	I	4 vertical bars
(4)	I I	80 vertical bars
(5)	III	4 vertical bars mixed with 80bars
(6)	1	1200 Hz modulation in 5 vertical bars
(7)	2	900 Hz modulation in 5 vertical bars
(8)	3	600 Hz modulation in 5 vertical bars
(9)	6	600 Hz modulation
(10)	9	900 Hz modulation
(11)	12	1200 Hz modulation
(12)	E	450 Hz modulation Stop or End modulation
(13)	C	Continuous black (carrier at AM)
(14)	O	White (no carrier at AM)
(15)	O	White and end of sequence for single run.

Note that steps O, 14 and 15 are identical. In continuous run mode, this provides sufficient pause between individual test runs.

Since the 1 1/2 digit seven segment display is limited in its display features, above symbols have been chosen. As an option, also the sequence status number (as in brackets) may be displayed.

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Maintenance W F O 7

Some modes of operation can be selected by changing the setting of internal switches. To gain access to these switches, the cover must be removed. Unscrew the four screws holding the cover of the unit and remove screws and feet, then slide off the cover.

Looking at the main board, a six position dual in line switch can be seen which selects three features: Switches are numbered SW6 to SW11, latter being the rightmost switch.

Polarity of V24 output signal

+ for white, - for black: SW6 off SW7 on
- for white, + for black: SW6 on SW7 off

Any other setting of these switches will leave the V24 output undefined.

Single Run / Continuous Run

Single run with reset at end of sequence SW 8 off
Continuous run SW 8 on

Sequence Speed

16 lines per sequence step SW9 off SW10 off SW11 on
32 lines per sequence step SW9 off SW10 on SW11 off
64 lines per sequence step SW9 off SW10 off SW11 on

Not more than one of the three switches must be set on otherwise the test sequence circuit may not operate.

Setting output meter display

Full output should be switched by means of the level switch, using either FM or AM in continuous carrier mode. When terminated by a 600 Ohms resistor, the unit should deliver approx 0 dB into the output. Then RV1 on the display board should be set to give full scale display on the LED bar strip.

No other maintenance should be required. Repair techniques are those applicable to any C-MOS and linear integrated circuit device. Note that the active filter is not adjustable and must be changed as a unit if it fails.

Removal of the Display Board P.1197 is accomplished by first removing the three conical nuts holding the pushbuttons, pulling off the pushbutton heads and removing the display board. Then remove the three knobs, unscrew the four set screws holding the main p.c.board P.1196. Thus the whole electronics can be removed from the case.

Fuse Rating

The two mains fuses are rated at 50 mA slo-blo, size 5x20 mm

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Facsimile Test Unit

Maintenance

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Crystal Oscillator

The crystal oscillator uses two gates of IC1. Resistor R1 is used for correct bias of the oscillator gate, and C2 allows setting of the exact oscillator frequency. The second gate of IC1 is used to buffer the output for the various divider chains following.

Modulation Signal dividers

IC2 is used to divide the crystal frequency by 3, this signal being fed to both IC3 modulation signal divider stages and IC18/IC20/IC28 programmable start signal divider stages.

The crystal frequency is applied directly to the second modulation signal divider IC4. This 12 stage divider provides the 900 Hz and 450 Hz modulation and stop frequencies.

IC3 is used to generate the modulation frequencies 1200 and 600 Hz, and also to generate the start frequency of 300 Hz for i.o.c.576, if required.

Programmable Start Signal Divider

This divider is fed from IC2, at a third of the crystal oscillator frequency. IC18 will count up until a count is reached where all diode gate points are at high level, then 8IC20 will set the flip-flop formed by IC20. Therefore, a high level is generated at the reset pin of IC18 which will reset. When the clock input goes high again the flip flop is reset again, the reset pin will go low and the counter can count up again. Thus, any division ratio up to 256 can be achieved, by inserting only those diodes which will provide the correct count. Standard division ratio of 227 will provide the desired 675 Hz start frequency. Since the divider does generate a pulse train rather than a 1:1 square, a further flip flop, part of IC28, divides further by two and provides the correct waveform.

Phase Signal Generator

A frequency of 38400 Hz is derived from IC3 dividers, and is fed to a -15 stage IC12. IC12 is a presetable synchronous counter which contains a feedback from the terminal count to the synchronous load input. Thus, on reaching the terminal count of 15, the next pulse will load the parallel input information, and counting proceeds then from this preset value. Since the value is fixed at 0001, this counter will divide by 15.

The stage following is similar but since the parallel inputs are programmable by setting the speed switch (through the diode gates D6..D14), the division ratio is programmable from 2 to 16 which corresponds to the speeds of 360 to 60 RPM. The output from this divider corresponds to 160 times the speed. IC13 following divides by 16 and IC15 divides by 10, thus giving the correct speed. One output of IC13 is used as a modulation signal, generating 80 vertical bars per revolution, and an output from IC15 provides a further pattern of 5 vertical bars which are used for modulation.

IC14 is a gate used to generate the 5% phasing pulses at 8IC14, and the 95% phasing pulses by inversion of the signal. Also, a 50% phasing signal can be derived from the last divider stage of IC15. A gate arrangement IC16,17 will gate one of the three phasing signals to the output, according to the setting of the PHASE switch. The phase signal at 6IC17 is fed to the signal selector IC22 and to the automatic test sequence counter IC28.

Carrier Divider, Modulator and Signal Output Stages

This is a two stage programmable divider IC5,IC6 which is fed by the oscillator buffer. Division ratio if programmed by eight lines at the parallel inputs of the counters, and the feedback gate IC1.

W F 07

P.1196

WF 07 Test Unit Main Board

Circuit Description

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The eight program lines are output from PROM IC7. This programmable read only memory contains the information about the division ratio, dependent of the setting of the CARRIER switch and the status of the modulation input 13IC7. For AM ranges, the frequency setting is the same for both modulation status, and the gating arrangement IC21 sets 1IC21 active with the modulation content. For FM ranges, D2 renders the AM modulator inoperative and the frequency setting is different for both modulation status. Thus, a steady carrier is generated with varying frequency.

The output of the programmable divider is a pulse train, which is further divided by IC8, by a ratio of 16. This not only generates the 1:1 waveform required, but also smoothes phase jitter which does occur by switching to different division ratios in the programmable dividers. 12IC8 provides the carrier frequency, after removing a certain part of harmonics by R5,C4,R6 the carrier is fed to the AM modulator transistor T1. T1 switches the carrier on and off, according to the signal at its base. The modulated signal is fed to a buffer amplifier in IC30, and then routed to the output level attenuator. The 12 settings of this switch roughly provide 3 dB steps of attenuation, down to approximately 32 dB of attenuation. The attenuated signal is fed to a laser trimmed active filter circuit IC31, and from there to the output stage IC32. The output signal is fed from there to a line transformer, via protection circuit R40/D3/D4, to provide the balanced 600 Ohms output. The primary signal is also fed to the display panel socket for the level meter.

Test Sequence circuit

Data selector IC22 is used to select the modulation signal. This selector is driven by the sequence counter IC23, a seven bit binary counter. The 16 stages of count give the following modulation patterns:

- 0 No carrier (AM) or White (FM)
- 1 Start signal or no carrier, as selected by start
- 2 Phase signal as selected by the phase signal switch
- 3 4 vertical bars, independent of speed
- 4 80 vertical bars, independent of speed
- 5 5 vertical bars, mixed with 80 vertical bars
- 6 5 vertical bars modulated with 1200 Hz
- 7 5 vertical bars modulated with 900 Hz
- 8 5 vertical bars modulated with 600 Hz
- 9 600 Hz modulation
- 10 900 Hz modulation
- 11 1200 Hz modulation
- 12 450 Hz modulation (stop signal at start stop)
- 13 Continuous carrier (AM) or Black (FM)
- 14,15 No carrier (AM) or White (FM)

Note that three positions are left with white tone. On automatic sequencing, this would allow sufficient time to close a recorder down and prepare a new start. Since IC23 is a seven bit counter, each status is changed by 8 input pulses. The input pulses are derived from phase pulses and a pre-divider IC28. Setting of one of the speed switches allows for changing the sequence step with every 16th, 32nd or 64th line on the recorder.

The gating in IC26 and IC27 allows the user selection of three modes. RESET means that the counter is reset to pattern 0, no carrier. This status will be automatically initiated on switching on the unit, or activated by depressing the RESET pushbutton.

5				W F O 7	P.1196	WF O7 Test Unit Main Board
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3				Circuit Description (2)	elecom	
2	16.4.80	pc				
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Flip Flop IS26 is the in the reset state. In this state, depressing of the STEP pushbutton generates a pulse train as input for the sequence counter, which allows manual stepping through the program. If the RUN pushbutton is depressed, the flip flop changes state, enabling the output pulses from IC28 to enter the sequence counter clock input. The Status of the sequence counter is displayed on the control display board P.1197, a special encoder IC24 is used to display the status on a two digit 7 segment display. In the RUN position, the sequence flip flop may either run continuously, or may be stopped at the end of the sequence, according to the setting of SW8. If SW8 is closed, gate IC29 is inoperative. If SW8 is open, then gate IC29 will make its output low when count 15 is reached. This will, via transistors T2,T3, effectively operate like the operation of the RESET pushbutton, thus the unit will revert to standby after each sequence cycle.

The power supply is derived from the centre tapped secondary winding of the mains transformer external to the printed circuit. D5 rectifier and C15/C16 generate a positive and a negative voltage. Both voltages are stabilised by integrated circuit voltage regulators.

P.1197 Control and Display Board

Connected to P.1196 via a 16 way DIL connector, this board carries the RESET/RUN/STEP pushbuttons and the displays. The status display for the sequence counter is fed directly from the main board.

The line output display consists of two LM3914 dot bar encoders connected in series, and a 20 dots LED strip display. The dot bar encoders drive one of the LED dots, dependent of the input voltage. The input voltage is the line output voltage from the line amplifier, RV1 is used to set the range while D1 suppresses the negative half waves from the input. Since the momentary voltage is measured the display will effectively look like a bar display, but virtually without any time constant.

As an option, if a capacitor is fitted across RV1, the input voltage will be rectified with the time constant $RV1/C$. This will give a dot display with the time constant selected since a DC voltage is measured then by the dot bar encoders.

Overall Wiring, Power Supply

Mains input is connected via an IEC input socket with integral fuse holders, to the power switch on the front panel, and from there to the mains transformer mounted at the rear of the case. Due to safety regulations, this cableform is separate from all other wires within the unit. The P.C. boards do not carry mains voltage.

Since speed switch, level switch and carrier switch are mounted on the main P.C. board, only phase switch and start signal switch are wired. The pushbuttons which carry the display P.C. board are connected via a 16way DIL cable to the 16pin DIL socket on the main board.

The output terminals are mounted at the rear of the test unit and comprise a pair of terminals for the line output, a ground terminal and a V24 level output terminal.

W F O 7

P.1196,P.1197,WF O7 Test Unit Boards

Circuit Description(3)

elecom

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**** P 1196 **** WF 07 A MAIN BOARD ****

IC 6	MM 74 C 163N		NATIONAL	MOOR
IC 7	DM 74 S 188N	CARRIER PROM	NATIONAL	MOOR
IC 8	MM 74 C 93 N		NATIONAL	MOOR
IC 9	MM 74 C 10 N		NATIONAL	MOOR
IC 10	RA 13-100K N	898-1-R 100K	NATIONAL	MOOR
IC 11	MM 74 C 163N		NATIONAL	MOOR
IC 12	MM 74 C 163N		NATIONAL	MOOR
IC 13	MM 74 C 93 N		NATIONAL	MOOR
IC 14	MM 74 C 10 N		NATIONAL	MOOR
IC 15	MM 74 C 90 N		NATIONAL	MOOR
IC 16	MM 74 C 02 N		NATIONAL	MOOR
IC 17	MM 74 C 00 N		NATIONAL	MOOR
IC 18	CD 4040 N		NATIONAL	MOOR
IC 19	MM 74 C 00 N		NATIONAL	MOOR
IC 20	MM 74 C 02 N		NATIONAL	MOOR
IC 21	MM 74 C 02 N		NATIONAL	MOOR
IC 22	MM 74 C 150 N		NATIONAL	MOOR
IC 23	CD 4024 N		NATIONAL	MOOR
IC 24	DM 74 S 188	DISPLAY UNIT	NATIONAL	MOOR
IC 25	RA 08-470 N	899-1-470	NATIONAL	MOOR
IC 26	MM 74 C 00 N		NATIONAL	MOOR
IC 27	MM 74 C 14 N		NATIONAL	MOOR
IC 28	MM 74 C 93 N		NATIONAL	MOOR
IC 29	MM 74 C 30 N		NATIONAL	MOOR
IC 30	LM 358 N	(LM 1458 N)	NATIONAL	MOOR
IC 31	AF 133 CJ	ACTIVE FILTER	NATIONAL	MOOR
IC 32	LM 301 AN		NATIONAL	MOOR
IC 33	LM 340 T 5	(7805 T)	NATIONAL	MOOR
IC 34	LM 320 T 5	(7905 T)	NATIONAL	MOOR

TR 1	C 132	LINE TRANSFORMER	ELPRO	RIEGER
TR 2	TR 42 M 001	MAINS TRANSFORMER	ELECOM	ELECOM

XL 1	921,6 KHZ	TQ 4 / 80Z	25 PF	KVG	TUNKEL
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SW 1	FS 623.000-1-2X6-U-12-0-1,9	ERNI	LEITGEB	
SW 2	FS 623.000-1-2X6-U-12-0-1,9	ERNI	LEITGEB	
SW 3	FS 623.000-1-1X12-U-12-0-1,9	ERNI	LEITGEB	
SW 4	7103	C & K	AMPHENOL	
SW 5	7103	C & K	AMPHENOL	
SW 6.11	206-6	DIL 6	ANSLEY	ELBATEX

3	STK	8	POL	DIL	SOCKEL	C 830802	TEXAS INSTR.	TRANSISTOR
18	STK	14	POL	DIL	SOCKEL	C 831402	TEXAS INSTR.	TRANSISTOR
11	STK	16	POL	DIL	SOCKEL	C 831602	TEXAS INSTR.	TRANSISTOR
2	STK	24	POL	DIL	SOCKEL	C 832402	TEXAS INSTR.	TRANSISTOR

Datum: 1.6.1980 * Eingabe durch: PCR

Elatt: 3 * **** P 1196 **** WF 07 A MAIN BOARD ****

E L E C O M Elektronische Geräte Ges.m.b.H * Datenblatt

**** P 1196 **** WF 07 A MAIN BOARD ****

C	4	1.0 N	40 V	EDPU	CRL	MOOR
C	5	220.0 N	50 V	EDPU	CRL	MOOR
C	6	220.0 N	50 V	EDPU	CRL	MOOR
C	7	1.0 M	16 V	TAG	ITT	ELGE
C	8	10.0 M	16 V	TAG	ITT	ELGE
C	9	220.0 N	50 V	EDPU	CRL	MOOR
C	10	82.0	400 V	FKC	WIMA	ELGE
C	11	220.0 N	50 V	EDPU	CRL	MOOR
C	12	220.0 N	50 V	EDPU	CRL	MOOR
C	13	220.0 N	50 V	EDPU	CRL	MOOR
C	14	10.0 M	16 V	TAG	ITT	ELGE
C	15	2200.0 M	16 V	GSF	SIEMENS	SIEMENS
C	16	2200.0 M	16 V	GSF	SIEMENS	SIEMENS
C	17	1.0 M	16 V	TAG	ITT	ELGE
C	18	10.0	40 V	EDPU	CRL	MOOR
C	19	27.0	40 V	EDPU	CRL	MOOR

D	1	ZPD 3.9			ITT	ELGE
D	2	1 N 4148			TOSHIBA	MOOR
D	3	1 N 4148			TOSHIBA	MOOR
D	4	1 N 4148			TOSHIBA	MOOR
D	5	VM 18			VARO	MOOR
D	6	1 N 4148	OPTION ONLY		TOSHIBA	MOOR
D	7	1 N 4148	OPTION ONLY		TOSHIBA	MOOR
D	8	1 N 4148	OPTION ONLY		TOSHIBA	MOOR
D	9	1 N 4148			TOSHIBA	MOOR
D	10	1 N 4148			TOSHIBA	MOOR
D	11	1 N 4148			TOSHIBA	MOOR
D	12	1 N 4148			TOSHIBA	MOOR
D	13	1 N 4148			TOSHIBA	MOOR
D	14	1 N 4148			TOSHIBA	MOOR
D	15	1 N 4148			TOSHIBA	MOOR
D	16	1 N 4148			TOSHIBA	MOOR
D	17	1 N 4148	OPTION ONLY		TOSHIBA	MOOR
D	18	1 N 4148	OPTION ONLY		TOSHIBA	MOOR
D	19	1 N 4148	OPTION ONLY		TOSHIBA	MOOR
D	20	1 N 4148			TOSHIBA	MOOR
D	21	1 N 4148			TOSHIBA	MOOR
D	22	1 N 4148			TOSHIBA	MOOR
D	23	1 N 4148			TOSHIBA	MOOR

T	1	BC 107 B			NATIONAL	MOOR
T	2	BC 107 B			NATIONAL	MOOR
T	3	BC 107 B			NATIONAL	MOOR

IC	1	MM 74 C 00 N			NATIONAL	MOOR
IC	2	MM 74 C 73 N			NATIONAL	MOOR
IC	3	CD 4040 N			NATIONAL	MOOR
IC	4	CD 4040 N			NATIONAL	MOOR
IC	5	MM 74 C 163N			NATIONAL	MOOR

Datum: 1.6.1980 * Eingabe durch: PCR

Blatt: 2 **** P 1196 **** WF 07 A MAIN BOARD ****

E L E C O M Elektronische Geräte Ges.m.b.H * Datenblatt

*** P 1196 *** WF 07 A MAIN BOARD ***

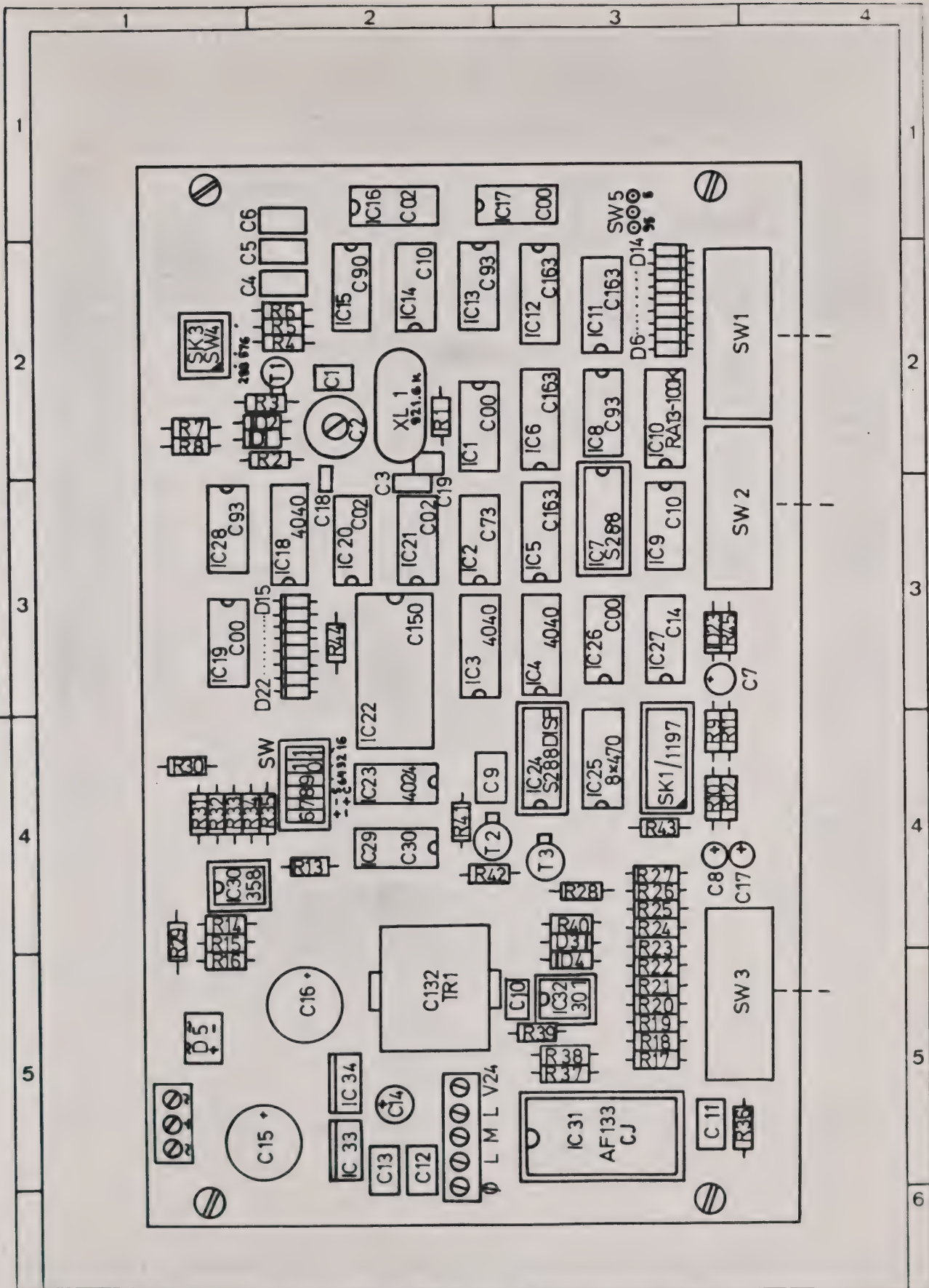
R	1	2.2 M	5%	1/3 W	LCA 0309	CRL	MOOR
R	2	18.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	3	18.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	4	10.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	5	27.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	6	27.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	7	100.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	8	100.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	9	10.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	10	100.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	11	10.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	12	100.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	13	100.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	14	10.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	15	27.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	16	12.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	17	1.2 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	18	1.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	19	680.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	20	470.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	21	330.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	22	220.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	23	150.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	24	120.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	25	82.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	26	56.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	27	39.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	28	100.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	29	150.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	30	1.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	31	3.3 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	32	27.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	33	27.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	34	27.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	35	27.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	36	47.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	37	120.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	38	47.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	39	68.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	40	470.0	5%	1/3 W	LCA 0309	CRL	MOOR
R	41	18.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	42	10.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	43	100.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	44	18.0 K	5%	1/3 W	LCA 0309	CRL	MOOR
R	45	47.0 K	5%	1/3 W	LCA 0309	CRL	MOOR

C	1	27.0	40 V	EDPU	CRL	MOOR
C	2	47.0	TRIMMER	CAPACITOR	DAU 702	DAU
C	3	32.0	40 V	EDPU	CRL	MOOR

Datum: 1.6.1980 * Eingabe durch: PCR

Blatt: 1 * *** P 1196 *** WF 07 A MAIN BOARD ***

E L E C O M Elektronische Geräte Ges.m.b.H * Datenblatt



LOGARITHMIC DISPLAY UNIT P 1197 L

Diese Einheit enthält die drei Bedienungstasten RUN, STEP, RESET und die Siebensegmentanzeige für die Betriebsart. Ferner befindet sich auf ihr ein aktiver Gleichrichter und eine Strichanzeigensteuerung mit Leuchtanzeige. Der aktive Gleichrichter ist mit IC1 D1,D2 bestückt, die Verstärkung kann mit RV1 eingestellt werden. Der Steuer-IC LM 3915 hat eine logarithmische Kennlinie, die einzelnen Leuchtstriche werden durch Pegeländerungen von 3dB umgesteuert. Die letzte Leuchtdiode zeigt Pegel um -27dB an, die rechteste etwa den Pegel 0dB.

R	1	100.0 K	5%	1/3 W	LCA 0309	DRALORIC	MOOR
R	2	1.0 K	5%	1/3 W	LCA 0309	DRALORIC	MOOR
R	3	1.0 K	5%	1/3 W	LCA 0309	DRALORIC	MOOR
RV	1	100.0 K	5%	1/3 W M 19 C		DRALORIC	MOOR
C	1	220.0 N	100 V	MKS2		WIMA	ELGE
C	2	27.0	50 V	EDPU		DRALORIC	MOOR
C	3	22.0 N	50 V	EDPU		DRALORIC	MOOR
IC	1	LM 301 AN				NATIONAL	MOOR
IC	2	LM 3915 N				NATIONAL	MOOR
LD	1	DD 10 R	ROT		ITT		ELGE
LD	2	TIL 814	ROT		TEXAS INST.	TRANSISTOR	
D	1	1 N 4148			ITT		ELGE
D	2	1 N 4148			ITT		ELGE
S	1	8121C	TASTER		AMPHENOL		AMPHENOL
S	2	8121C	TASTER		C & K		AMPHENOL
S	3	8121C	TASTER		C & K		AMPHENOL
1	STUECK	8-POLIGE DIL-SOCKEL	C 830802	TI			TRANSISTOR
1	STUECK	18-POLIGE DIL-SOCKEL	C 831802	TI			TRANSISTOR
1	STUECK	20-POLIGE DIL-SOCKEL	C 832002	TI			TRANSISTOR
1	STUECK	24-POLIGE DIL-SOCKEL	C 832402	TI			TRANSISTOR
24	poliger Sockel für TIL 814 auf 20 Pole gekürzt						

Datum: 1.6.1980

Eingabe durch: PCR

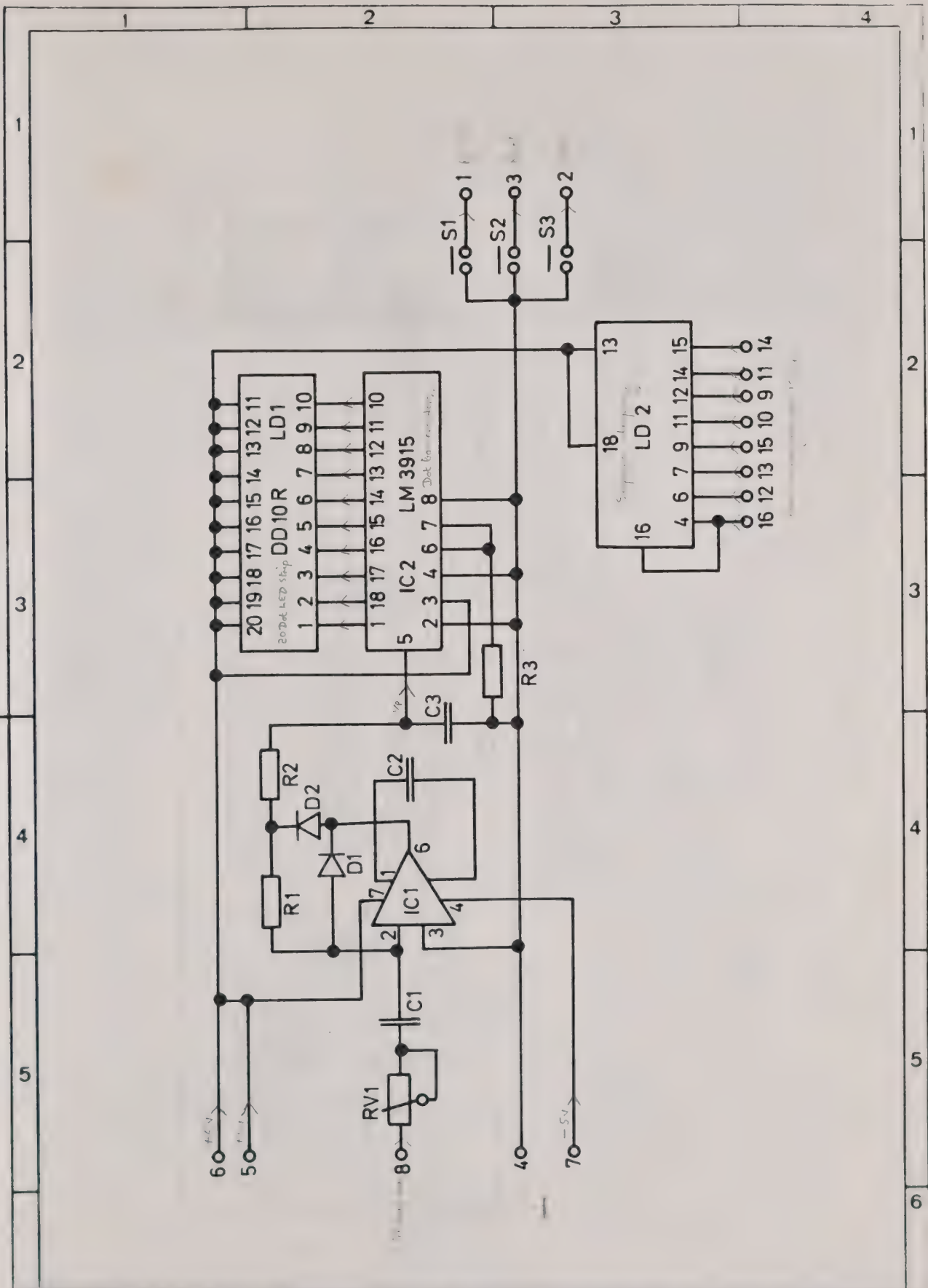
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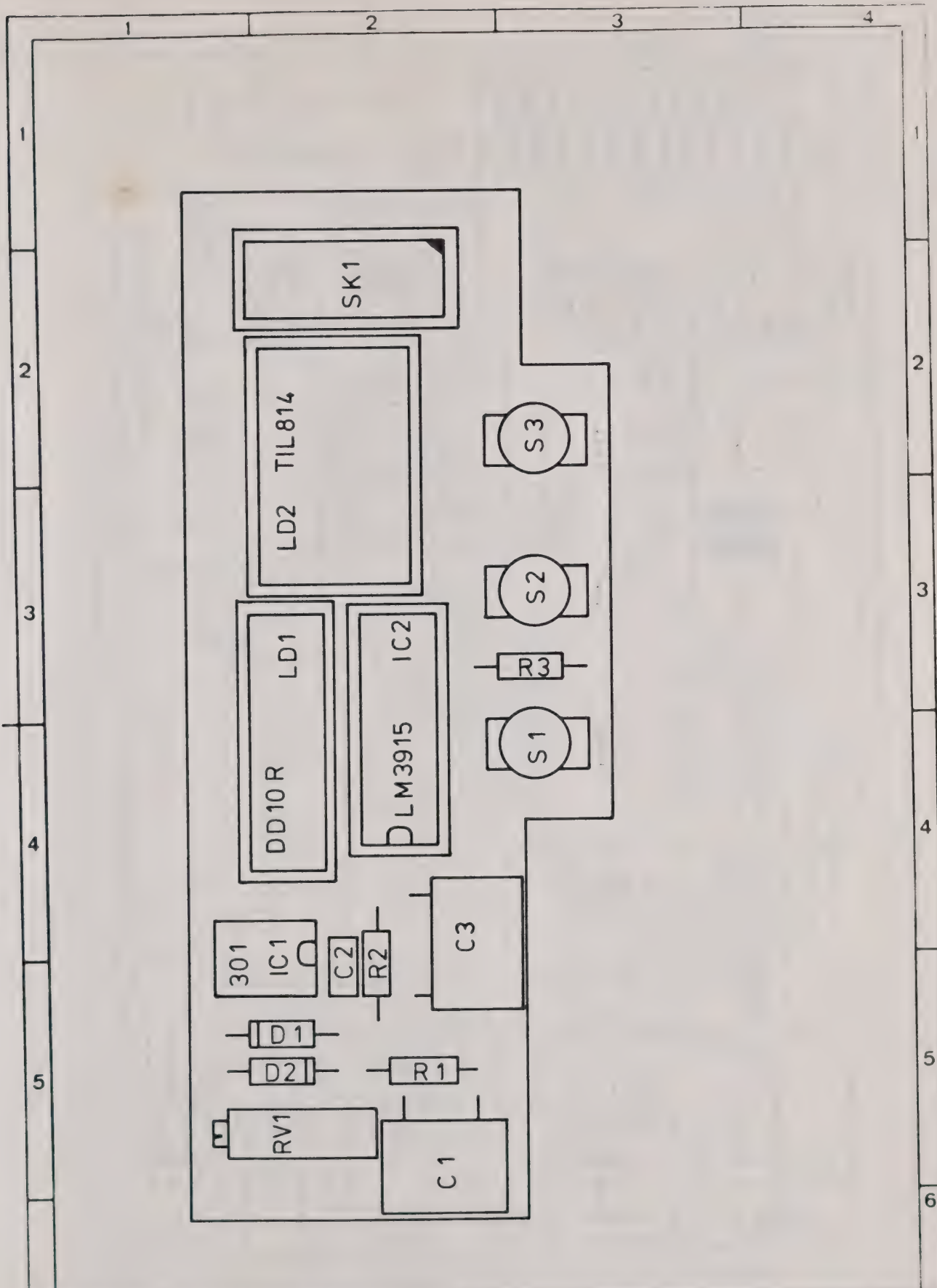
LOGARITHMIC DISPLAY UNIT P 1197 L

E L E C O M

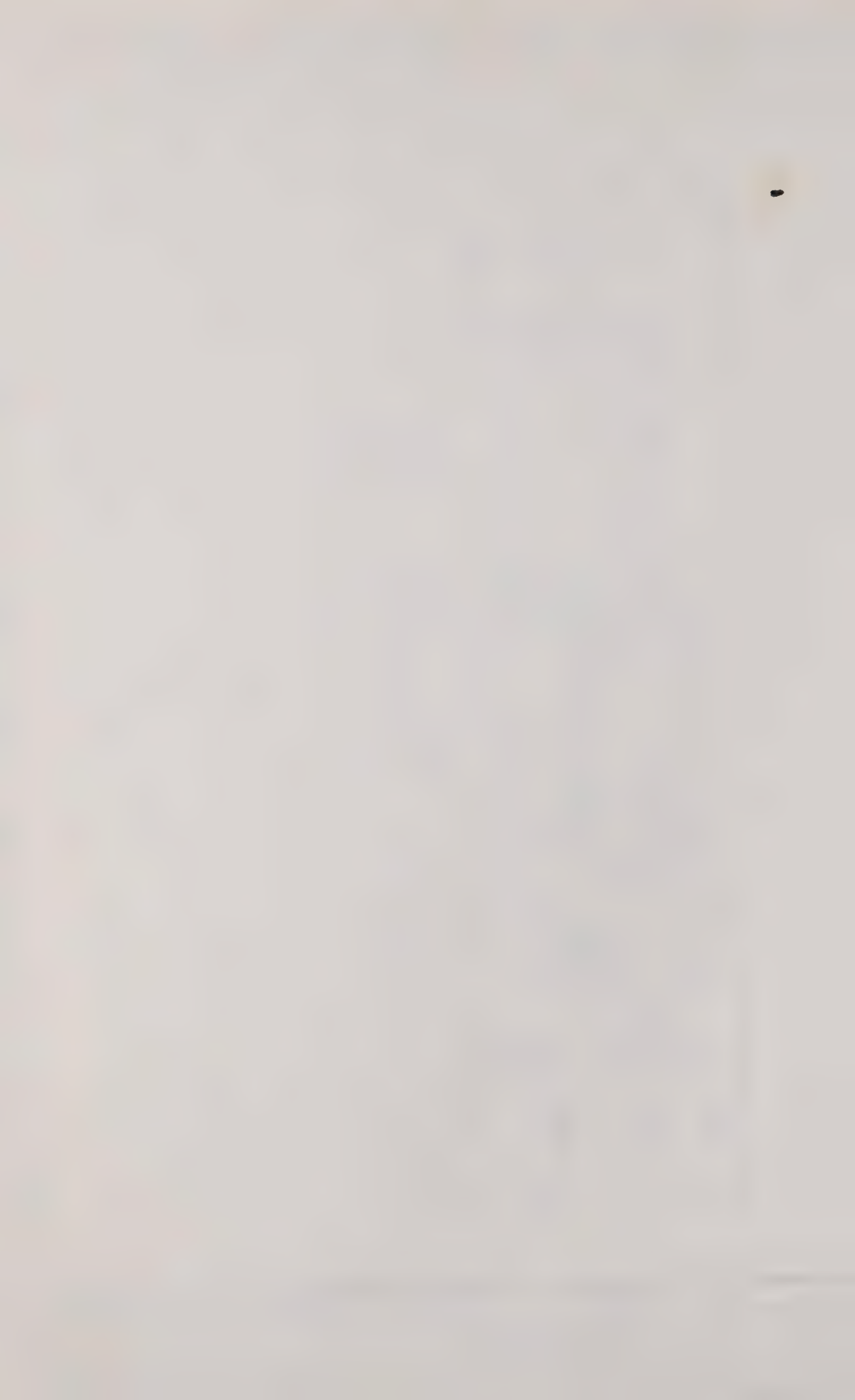
Elektronische Geräte Ges.m.b.H.

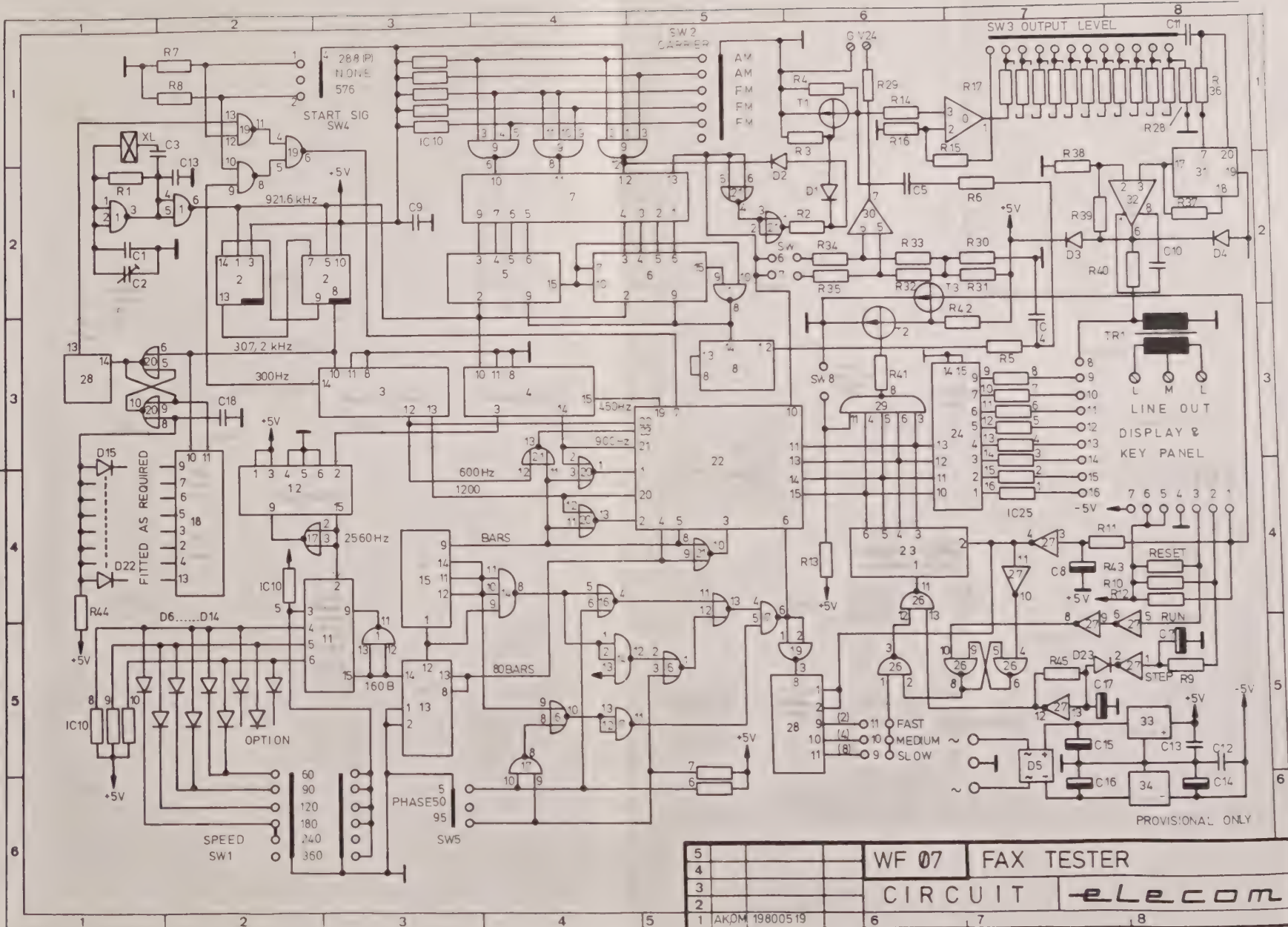
Datenblatt





5				TYPE	P1197 L	LOG DISPLAY+CONTROL
4						
3				LAYOUT		<i>elecom</i>
2						
1	19 4 1980	PCR				PAGE OF





				Maßstab			
		Datum	19800328	FRAME WIRING			
		Bearb.	O.M.				
		Gepr.					
		Norm					
		WF Ø7		~~elecom~~			
Zust.	Mitteilung	Datum	Name	Blatt			
				Bl.			

